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EXAMINER	
DICUS, TAMRA	
ART UNIT	PAPER NUMBER
1774	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/780,263	AYLWARD ET AL.	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-91 is/are pending in the application.

4a) Of the above claim(s) 50-91 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-49 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 02-17-04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION
Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-49, drawn to an article, classified in class 428, subclass 195.1.

II. Claims 50-91, drawn to a method of making a base, classified in class 427, subclass 100.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the article can be made by forming a second mixture prior to the first.

3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Lynne Blank

4. During a telephone conversation with BLANK, LYNNE on 4/3/06 a provisional election RO was made with traverse to prosecute the invention of I, claims 1-49. Affirmation of this election must be made by applicant in replying to this Office action. Claims 50-91 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

6. Claim 14 is objected to because of the following informalities: the surface roughness value is missing the unit. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of "autochrome" appears to be a trademark. The use of trademarked terms in claims does not identify or describe the goods associated with the trademark or trade name. Trademarks or trade names are used to identify a source of goods, and not the goods themselves. See MPEP 2173.05(u). Replacement of trademarked terms with a generic description is advised.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-49 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,537,656 in view of Dontula et al. and further in view of UPSN 5,916,672 to Reeves et a.

Although the conflicting claims are not identical, they are not patentable distinct from each other because the present claims differ only in the recitation of the density gradient recitations. However, Reeves teaches a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140). Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, , it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thus the present claims are broader in scope and encompasses that which is claimed by the Dontula reference.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-3, and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,872,673 to MacAulay.

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not recite the bead like cells "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped (solid polymer matrix and gaseous phase) and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that

discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1.

MacAulay teaches a laminate comprising expanded polyolefin and polyurethane foams being closed or open comprising a blowing agent useful for strength and structural integrity (col. 3, lines 20-22, col. 4, lines 25-col. 5, line 26).

It would have been obvious to one having ordinary skill in the art to have modified the polymer foam core of Reeves to use the polymer closed cell foam core with use of a blowing agent of MacAulay because MacAulay teaches a laminate comprising expanded polyolefin and polyurethane foams being closed or open comprising a blowing agent useful for strength and structural integrity (col. 3, lines 20-22, col. 4, lines 25-col. 5, line 26 of MacAulay).

To the melt flow rates of the polymers (per instant claims 7-9), they are inherent to the polymer absent any evidence to the contrary.

13. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,093,481 to Lynn et al.

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not recite the bead like cells as "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell

foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped (solid polymer matrix and gaseous phase) and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 14-50). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1, nor a polymer of polypropylene derivatives or copolymers or blends or polyester (instant claims 3-6).

Lynn teaches a laminate comprising polymer foam cores of polyolefin, polyurethane, polyester, and other copolymers and polymeric types and blends being closed or open comprising a blowing agent useful for strength and structural integrity (col. 2, lines 30-40, col. 5, lines 40-65, col. 6, lines 1-10 e.g. mixed PUR/PIR foams of polyester polyols).

It would have been obvious to one having ordinary skill in the art to have modified the polymer foam core of Reeves to use the polymer of polyolefin, polyurethane, polyester, and

other copolymers and polymeric types and blends closed cell foam core with use of a blowing agent because Lynn teaches a laminate comprising polymer foam cores of polyolefin, polyurethane, polyester, and other copolymers and polymeric types and mixture blends being closed or open comprising a blowing agent useful for strength and structural integrity (col. 2, lines 30-40, col. 5, lines 40-65, col. 6, lines 1-10).

To the melt flow rates of the polymers (per instant claims 7-9), they are inherent to the polymer absent any evidence to the contrary.

14. Claims 1-3, 7-13, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 4,764,420 to Gluck et al.

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not recite the bead like cells "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been

obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1. Further to claim 2, if the broad term "a gaseous phase" is intended to mean a material, Gluck is used below accordingly.

Gluck teaches a rigid foam of expanded polyolefin and polyurethane being closed or open comprising a gaseous blowing agent for being lightweight and highly permeable (Abstract, col. 1, lines 50-65, col. 6, lines 25-50, col. 12, lines 3-50, col. 14, lines 10-36).

It would have been obvious to one having ordinary skill in the art to have modified the polymer foam core of Reeves to use the polymer closed cell foam core with use of a blowing agent and gaseous phase of Gluck because Gluck teaches a rigid foam of expanded polyolefin and polyurethane being closed or open comprising a gaseous blowing agent for being lightweight and highly permeable (Abstract, col. 1, lines 50-65, col. 6, lines 25-50, col. 12, lines 3-50, col. 14, lines 10-36).

To the melt flow rates of the polymers (per instant claims 7-9), they are inherent to the polymer absent any evidence to the contrary.

Reeves does not teach an orientation or cast per claims 15 and 18.

Gluck shows the foam made in machine direction and cast (FIG. 1 and associated text).

It would have been obvious to one having ordinary skill in the art to have modified the Reeves foam in machine direction because Gluck shows a conventional way to produce the foam made in machine direction and cast (FIG. 1 and associated text).

15. Claims 1-20, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,103,152 to Gehlsen et al.

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not recite the bead like cells "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1, nor using the polymers of claims 3-6. Further to claim 2, if the broad term "a gaseous phase" is intended to mean a material, Gehlsen is used below accordingly.

Gehlsen teaches a rigid foam of expanded polyolefin, polyester, and polyurethanes comprising a gaseous blowing agent useful in reducing density of a polymer matrix foam (Abstract, col. 1, lines 5-40, col. 2, lines 20-68, col. 6, line 5-60, col. 7, lines 1-68-col. 8, line 10 and FIG. 7).

It would have been obvious to one having ordinary skill in the art to have modified the polymer foam core of Reeves to use the polymers as claimed and a closed cell foam core with use of a blowing agent and gaseous phase because Gehlsen teaches a rigid foam of expanded polyolefin, polyester, and polyurethanes comprising a gaseous blowing agent useful in reducing density of a polymer matrix foam (Abstract, col. 1, lines 5-40, col. 2, lines 20-68, col. 6, line 5-60, col. 7, lines 1-68-col. 8, line 10 and FIG. 7). The derivatives are obvious variants of the polymers taught by Gehlsen.

To the melt flow rates of the polymers (per instant claims 7-9), they are inherent to the polymer absent any evidence to the contrary.

Reeves does not teach an orientation or cast per claims 15 and 18.

Gehlsen shows the foam made in machine direction and cast (FIG. 7 and associated text).

It would have been obvious to one having ordinary skill in the art to have modified the Reeves foam in machine direction because Gehlsen shows a conventional way to produce the foam made in machine direction and cast (FIG. 7 and associated text).

Reeves does not teach the surface roughness as per claims 14 and 16-17.

Gehlsen teaches the surface of the foam is substantially smooth having an Ra less than about 75 micrometers, falling in Applicant's range of greater than 1.4 and less than 0.4 micrometers per claims 14 and 16-17 (col. 1, lines 30-40 and col. 2, lines 55-68).

It would have been obvious to one having ordinary skill in the art to have modified the foam of Reeves to use the foam of Gehlsen having the required Ra because Gehlsen teaches the surface of the foam is substantially smooth having an Ra less than about 75 micrometers for having a surface smooth enough to adhere to an article of interest (col. 1, lines 30-40 and col. 2, lines 55-68 of Gehlsen).

To claims 19-20 and 29, Reeves does not teach the thickness, however it is an optimizable feature. It would have been obvious to one of ordinary skill in the art to produce a thickness as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thickness effects the strength.

Claims 1-13, 19-25, 28-39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,447,976 to Dontula et al.

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not

recite the bead like cells "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped and may be contained in a numerous amounts of layers to reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1, nor using the polymers of claims 3-6. Further to claim 2, if the broad term "a gaseous phase" is intended to mean a material, Dontula is used below accordingly.

Dontula teaches an article having a foamed polymer core comprising a polymer foam core, blowing agent, solid polymer matrix, and a gaseous phase (col. 5, lines 1-35) as processing enhancements for the foam.

It would have been obvious to one having ordinary skill in the art to have modified the foam of Reeves to use the ingredients as claimed because Dontula teaches a foamed polymer core comprising a polymer foam core, blowing agent, solid polymer matrix, and a gaseous phase as processing enhancements for the foam (col. 5, lines 1-35 of Dontula).

Reeves does not teach further comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core (instant claims 21-25) and a flange coating layer on the foam of polymer per instant claims 32-36, 41, and 49 or paper of instant claim 39.

Dontula teaches an article having a foamed polymer core comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core to form a superior imaging support and image receiving layers for printability, improve adhesion, high opacity and whiteness (col. 4, lines 15-68, col. 7, lines 30-68, col. 9, lines 35-65, instant claims 21-25) and a flange and coating layer on the foam of polymers per instant claims 32-38, 41 and 49 for support, flexural modulus, surface roughness or smoothness, and optical opacity (col. 5, lines 45-68, col. 7, lines 10-60, col. 8, lines 35-68) and paper to provide brightness and a good starting surface and good formation strength (col.6, lines 55-68, instant claim 39).

It would have been obvious to one having ordinary skill in the art to have modified the foam of Reeves to include an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core as per instant claims 21-25, a flange layer on the foam of polymer per instant claims 32-38 and 41, and of paper as per instant claim 39 because Dontula teaches an article having a foamed polymer core comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core to form a superior imaging support and image receiving layers for printability, improve adhesion, high opacity and whiteness (col. 4, lines 15-68, col. 7,

lines 30-68, col. 9, lines 35-65, instant claims 21-25), and a flange and coating layer of polyethylene on the foam of polymers per instant claims 32-38, 41 and 49 for support, flexural modulus, surface roughness or smoothness, and optical opacity (col. 5, lines 45-68, col. 7, lines 10-60, col. 8, lines 35-68) and paper to provide brightness and a good starting surface and good formation strength (col.6, lines 55-68, instant claim 39).

To claims 19-20 and 29, Reeves does not teach the thickness, however it is an optimizable feature. It would have been obvious to one of ordinary skill in the art to produce a thickness as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thickness effects the strength.

Reeves does not teach the flange and core base having inorganic, brighteners, tenting and whitening agents or opacity recitation as per claims 28 and 42-48 having a b* UVO or L* value as recited per claims 30-31.

Dontula teaches flange and core base having inorganic, brighteners, tenting and whitening agents as per claims 28 and 42-48 having b* UVO or L* value within Applicant's ranges as recited per instant claims 30-31 for enhancing optical properties (col. 7, lines 1-25, col. 8, line 45-col. 9, line 11, Examples, Tables 1-3).

It would have been obvious to have modified the foam article of Reeves to include the ingredients having the values as per claims 28, 30-31 and 42-48 because Dontula teaches including inorganic, brighteners, tenting and whitening agents as per claims 42-48 having b* UVO or L* value within Applicant's ranges as recited per instant claims 30-31 for enhancing

optical properties and opacity (col. 5, lines 1-10, col. 7, lines 1-25, col. 8, line 45-col. 9, line 11, Examples, and Tables 1-3).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,447,976 to Dontula et al. and further in view of USPN 6,876,467 to Yamaguchi.

Reeves and Dontula are relied upon above.

Reeves does not explicitly teach the image comprising an autochrome imaging layer.

Yamaguchi teaches a printer that prints an image shot by a digital still camera or the like on photographic paper and operates on the thermo-autochrome (TA) method is on the market. In TA method, color photographic paper (TA paper) that has C, M and Y layers itself produces the colors when it is heated and the produced colors are fixed when a light of a predetermined wavelength is thrown onto the TA paper. TA method does not require ink or toner (col. 1, lines 5-25).

It would have been obvious to one having ordinary skill in the art to have modified the combination to include an autochrome image because Yamaguchi teaches a printer that prints an image shot by a digital still camera or the like on photographic paper and operates on the thermo-autochrome (TA) method is on the market. In TA method, color photographic paper (TA paper) that has C, M and Y layers itself produces the colors when it is heated and the produced colors are fixed when a light of a predetermined wavelength is thrown onto the TA paper. TA method does not require ink or toner (col. 1, lines 5-25 of Yamaguchi).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,447,976 to Dontula et al. and further in view of USPN 6,342,329 to Tsuda et al.

Reeves and Dontula are relied upon above.

Reeves does not explicitly teach a crushable dye encapsulated imaging layer.

Tsuda teaches photocuring compositions including a dye are supported on a substrate in a microcapsule-encapsulated state, so that it is possible to provide an inexpensive image-forming medium with which full-color printing is possible and a reduction in density of the 3 primary colors, etc., can be prevented using microcapsules that can be easily produced by conventional methods. Tsuda teaches a crushing roller employed when the rupturing doesn't take place on its own. The dye flows out and reacts with the developer and coloration takes place to form an image and the image density is improved. See col. 1, lines 1-50, col. 2, lines 10-68, col. 3, line 32-col. 4, line 20.

It would have been obvious to one having ordinary skill in the art to have modified the combination to further include a crushable dye encapsulated imaging layer because Tsuda teaches photocuring compositions including a dye are supported on a substrate in a microcapsule-encapsulated state, so that it is possible to provide an inexpensive image-forming medium with which full-color printing is possible and a reduction in density of the 3 primary colors, etc., can be prevented using microcapsules that can be easily produced by conventional methods. Tsuda teaches a crushing roller employed when the rupturing doesn't take place on its own. The dye flows out and reacts with the developer and coloration takes place to form an

image and the image density is improved. See col. 1, lines 1-50, col. 2, lines 10-68, col. 3, line 32-col. 4, line 20.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,447,976 to Dontula et al. and further in view of USPN 6,627,018 to O'Neill et al.

Reeves and Dontula are relied upon above.

Reeves does not explicitly teach the flange comprising fabrics.

However, Dontula teaches the flange comprises polyester and glass fibers (col. 7, lines 20-23).

O'Neill teaches a polymer foam core surrounded by polymeric sheets and includes fibers to make a fibrous layer to impart to the composite modulus stiffness and compressive strength (col. 14, line 12-col. 15, line 30).

It would have been obvious to one having ordinary skill in the art to have modified the combination to include a flange of fabric because Dontula teaches the flange comprises polyester and glass fibers (col. 7, lines 20-23 of Dontula) and O'Neill teaches a polymer foam core surrounded by polymeric sheets and includes fibers to make a fibrous layer to impart to the composite modulus stiffness and compressive strength (col. 14, line 12-col. 15, line 30 of O'Neill).

Claims 1-13, 19-25, 28-39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,916,672 to Reeves et al. in view of USPN 6,537,656 to Dontula et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Reeves teaches an article per instant claim 1 comprising a base wherein said base comprises a closed cell polypropylene or polyurethane expanded foam core sheet (32, FIG. 1 and 142, FIG. 3 and associated text, e.g. Reeves shows a closed cell in FIGS. 1 and 3, but does not recite the bead like cells "closed", but because the figure shows circularly beaded cells, they are considered to be closed), wherein said closed cell foam core sheet comprises two closed cell foam layers (132, 136, FIG. 3 and associated text), wherein said at least one closed cell foam layer, and wherein said closed cell foam core sheet has a density wherein said density comprises a gradient (e.g. col. 3, lines 56-62, and FIG. 3 showing smaller cells in 134 and 138 and larger ones in 140).

Reeves teaches the density gradient in the polymer core is effected by the expansion of cells and amount of air entrapped and may be contained in a numerous amounts of layers to

reach the chosen thickness (col. 6, lines 14-50). Thus, while Reeves doesn't state the density gradient decreasing from center to surface or the use of three foam layers, it would have been obvious to one having ordinary skill to modify the invention based on the teachings of Reeves above (col. 6, lines 145). Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Instant claims 1-3, and 7-13 are addressed.

Reeves does not teach the polypropylene or polyurethane closed cell expanded foam layer comprises a polymer that has been expanded through the use of a blowing agent per instant claim 1, nor using the polymers of claims 3-6. Further to claim 2, if the broad term "a gaseous phase" is intended to mean a material, Dontula is used below accordingly.

Dontula teaches an article having a foamed polymer core comprising a polymer foam core, blowing agent, solid polymer matrix, and a gaseous phase (col. 4, lines 1-45) as processing enhancements for the foam.

It would have been obvious to one having ordinary skill in the art to have modified the foam of Reeves to use the ingredients as claimed because Dontula teaches a foamed polymer core comprising a polymer foam core, blowing agent, solid polymer matrix, and a gaseous phase as processing enhancements for the foam (col. 4, lines 1-45 of Dontula).

Reeves does not teach further comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core (instant claims 21-25) and a flange coating layer on the foam of polymer per instant claims 32-36, 41, and 49 or paper of instant claim 39.

Dontula teaches an article having a foamed polymer core comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core to form a superior imaging

support and image receiving layers for printability, improve adhesion, high opacity and whiteness (col. 8, lines 55-68, col. 9, lines 1-col. 10, line 65, instant claims 21-25) and a flange and coating layer on the foam of polymers per instant claims 32-38, 41 and 49 for support, flexural modulus, surface roughness or smoothness, and optical opacity (col. 4, lines 15-68, col. 5, lines 1-60, col. 6, lines 1-30) and paper to provide brightness and a good starting surface and good formation strength (col. 6, lines 1-30, instant claim 39).

It would have been obvious to one having ordinary skill in the art to have modified the foam of Reeves to include an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core as per instant claims 21-25, a flange layer on the foam of polymer per instant claims 32-38 and 41, and of paper as per instant claim 39 because Dontula teaches an article having a foamed polymer core comprising an imaging layer such as ink jet, thermal dye, electrophotographic applied to the core to form a superior imaging support and image receiving layers for printability, improve adhesion, high opacity and whiteness (col. 8, lines 55-68, col. 9, lines 1-col. 10, line 65, instant claims 21-25) and a flange and coating layer on the foam of polymers per instant claims 32-38, 41 and 49 for support, flexural modulus, surface roughness or smoothness, and optical opacity (col. 4, lines 15-68, col. 5, lines 1-60, col. 6, lines 1-30) and paper to provide brightness and a good starting surface and good formation strength (col. 6, lines 1-30, instant claim 39).

To claims 19-20 and 29, Reeves does not teach the thickness, however it is an optimizable feature. It would have been obvious to one of ordinary skill in the art to produce a thickness as claimed, since it has been held that discovering an optimum value of a result

effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thickness effects the strength.

Reeves does not teach the flange and core base having inorganic, brighteners, tenting and whitening agents or opacity recitation as per claims 28 and 42-48 having a b* UVO or L* value as recited per claims 30-31.

Dontula teaches flange and core base having inorganic, brighteners, tenting and whitening agents as per claims 28 and 42-48 having b* UVO or L* value within Applicant's ranges as recited per instant claims 30-31 for enhancing optical properties (col. 4, lines 15-35, col. 6, line 15-45, Examples, Tables 1-3).

It would have been obvious to have modified the foam article of Reeves to include the ingredients having the values as per claims 28, 30-31 and 42-48 because Dontula teaches including inorganic, brighteners, tenting and whitening agents as per claims 42-48 having b* UVO or L* value within Applicant's ranges as recited per instant claims 30-31 for enhancing optical properties and opacity (col. 4, lines 15-35, col. 6, line 15-45, Examples, Tables 1-3).

REFERENCES OF INTEREST

USPN 4,209,188 to Chao teaches a microcapsule to help reduce discoloration caused by leakage or premature rupture and release of the dye precursor while still providing good image intensity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamra L. Dicus
Examiner
Art Unit 1774

04/25/06

RENA DYE
SUPERVISORY PATENT EXAMINER

A.U. 1774 4/30/06